

IMPERATIVES OF ENVIRONMENTAL EDUCATION AND AWARENESS CREATION TO SOLID WASTE MANAGEMENT IN NIGERIA

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ABSTRACT

The management of solid wastes in recent time has become a very big challenge. The indiscriminate dumping of solid wastes in the streets, gutters open spaces and flood during rains leads to the spread of diseases and pollution of the environment. The inability of the adult citizens to segregate, reduce, reuse and recycle their wastes has further compounded the management of wastes by the contractors involved in wastes management in different states of the country. It is in the light of these problems that the paper discussed the importance of education and awareness creation on solid waste management. The strategies to be utilised in education and awareness creation is equally discussed, so also the benefits of educating the citizens. The paper recommends that educating the citizens both formally, informally and non-formally should be sustained. The print, electronic media, environmental education materials should all be utilised in creating awareness.

Keywords: Environmental Education, Awareness Creation, Solid Waste and Solid Waste Management

INTRODUCTION

The management of solid wastes has become increasingly a difficult task locally and globally with increase in population and high consumption patterns among urban dwellers in Nigeria. In most urban cities, solid wastes are thrown away indiscriminately in any available space without care of the negative impacts it has on the environment. This poses serious threat to human health and the environment. Improper management of solid wastes defaces the environment, spreads disease, and contaminates ground water, air and land quality. This is in support of Glenn (2009:3) who observed that improper solid waste disposal of household solid wastes is a source of air, land and water pollution and creates hazards to humans and the environment. It is a major environmental concern to many nations especially the developing countries.

The indiscriminate dumping of wastes especially at odd times, the violation of the rules and regulations guiding the dumping of solid wastes exists in Port Harcourt City (one of the major cities in Nigeria). This was revealed by Ayotamuno & Gabo (2004:389) as they observe that "indiscriminate dumping of wastes from industrial, commercial and households such as food wastes, paper, polythene, textiles, scrap metals, glass, wood, and plastic at street corners and gutters is very common in Port Harcourt city." Another observation made by the authors is that the residents of the city do not segregate their wastes into different categories of wastes before disposal. These wastes are usually mixed together and dumped indiscriminately in the environment and as a result, poses a lot of problems for effective management of wastes. It will be interesting to note that this phenomenon occurs in all the states of the federation including the Federal Capital Territory.

This practice could be attributed to lack of education on the types of wastes, characteristics of wastes and methods of solid waste disposal as well as the effects of improper wastes disposal on human beings. Even when the bins for separation are provided, different categories of wastes are still lumped together and disposed at the same point. This practice, no doubt results from lack of knowledge and skills needed for segregation of wastes at the source of generation and carefree attitude towards solid wastes management on the part of the citizens.

It is in this regard that this paper seeks to discuss the importance of environmental education and awareness creation on solid wastes management; the strategies that could be utilised in educating and

creating awareness in solid waste management and the benefits of education and awareness creation on solid wastes management in Nigeria.

ENVIRONMENTAL EDUCATION

Environmental education has been defined differently by different authors. Stapp et al in Environmental Education and Training Partnership (EETAP, 1997:1) defined environmental education as “education aimed at producing a citizenry that is knowledgeable concerning the biophysical environment and its associated problems, aware of how to help solve these problems, and motivated to work towards their solution”. Brennan in EETAP (1979:1) defines environmental education as:

that education which develops in man a recognition of his interdependence with all forms of life and a recognition of his responsibility to maintain the environment in a manner fit for life and fit for living, an environment of beauty and bounty, in which man lives in harmony.

This definition of environmental education views man as the steward of the environment and should protect and conserve its natural resources. UNESCO (1986:75) conceptualised environmental education in terms of: education from, about and for the environment. Education from the environment refers to the experiences we gain or acquire from our surroundings or physical environment; education about the environment involves the study of our environment. What it is made of, its resources and what use we can make of it; education for the environment has to do with our commitment to environmental protection, conservation and sustainable development. Environmental education according to the United States Federal Register (1996) is “a learning process that increases people’s knowledge and awareness about the environment and its associated challenges, develops the necessary skills and expertise to address the challenges, and fosters attitudes, motivations and commitments to make informed decisions and take responsible actions”. This definition is considered by Mbalisi (2010:45) as comprehensive among other definitions of environmental education he has come in contact with. According to him, environmental education enhances critical thinking, problem solving and effective decision-making skills and enables individuals to weigh various sides of an environmental issue before making informed and responsible decisions.

Environmental education enables individuals to acquire some experiences about the physical environment as well as study the natural resources that abound in it for optimal use and consequently get committed to environmental protection and conservation of natural resources for the present and future generations. Anijah-Obi (2001:34) also defines environmental education as: “a field of study which seeks to promote among citizens, not just awareness and understanding of the environment, but man’s relationship to it and responsible actions necessary to ensure his survival while improving the quality of life” The three crucial elements of environmental education as highlighted by Anijah-Obi (2001:34) are:

1. Creating awareness and understanding about the environment.
2. Recognizing man’s relationship, responsibility, attitudes and commitment to the environment.
3. Developing efficient and effective environmental management skills for the survival of present and future generations.

Environmental education programmes inculcates in adults practical knowledge, information, and necessary skills and competences for solid waste management. Dana (2006:47) reveals that awareness and education are effective in altering perceptions and attitudes towards waste segregation. The garbage project the Dana conducted shows that the participants were willing to change their behaviour in solid waste separation due to the training they received from the project.

Solid Wastes

Leton & Omotosho (2004) in Babayemi & Dauda (2009: 83) define solid waste as “non-liquid and non-gaseous products of human activities, regarded as being useless”. Solid wastes could take the form of refuse, garbage and sludge. United Nations (2009) considers solid wastes as “all domestic refuse and non-hazardous wastes such as commercial and institutional wastes, street sweepings and construction debris and in some countries, human wastes”. Solid wastes arise from human activities.

They could be regarded as refuse or garbage which is discarded by the owner as something which is of no use to the owner. However, some materials that are regarded as wastes can be reprocessed into valuable products or given away, thus rendering them useful to those who may need them. This could be achieved through proper management of solid wastes.

Solid Waste Management

Solid waste management is the collection, storage, transportation, treatment and disposal of wastes in such a way as to render them innocuous to human and animal life, ecology and the environment (Oreyomi, 1998:1). In other words waste management could be regarded as a process of treating, handling of refuse, sewage and other wastes that arise from human activities without endangering human health and the environment. The solid waste management techniques are waste reduction, reuse and recycling. This is referred to as the 3R's of waste management. It is represented by the waste management hierarchy designed by Waste Aware Business (2009) as shown in the figure below.

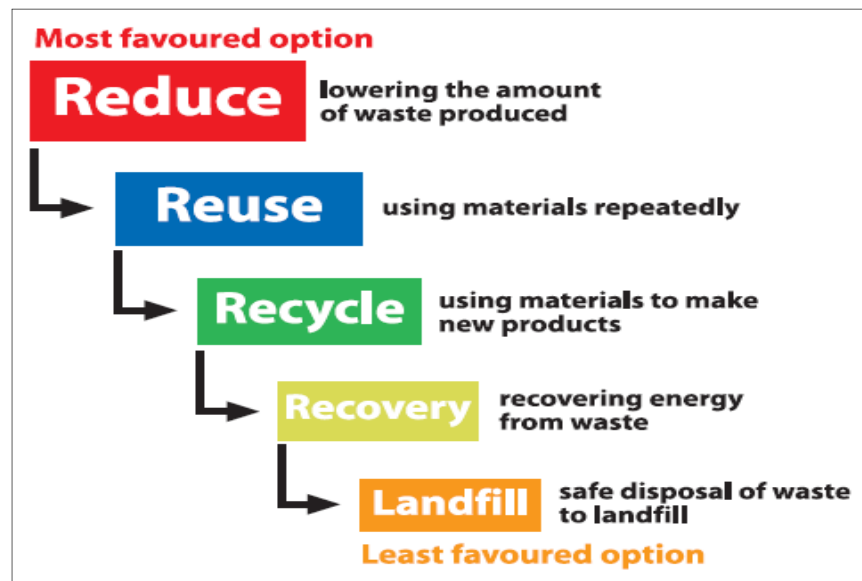


Figure 1. Waste Hierarchy

The most favoured option being waste reduction (waste prevention and minimisation). The least favoured option is sending wastes to landfills. Solid wastes segregation technique which enables individuals to segregate wastes at the source of generation is also an important technique that should be developed in individuals in order to attain effective management of wastes in Nigeria. Solid waste disposal methods which are mostly preferred and considered as environmentally friendly in waste management business are incineration, composting, dumping in approved dumpsites and land filling. However, littering, open burning and open dumping of solid wastes which are practised by many individuals are not environmentally friendly because they aid in the spreading of diseases and the pollution of the environment.

The primary objectives of effective solid waste management as highlighted by Oreoyomi (1998:2) are:

- The elimination of health hazards in the community by removing all the physical, biological and chemical agents like bottles, vectors or diseases and toxic substances that are harmful to man in his environment.
- To protect the natural environment being polluted or damaged. This is achieved by discouragement of wastes being dumped indiscriminately on either land or river.
- To provide gainful employment for many young men who would have been jobless.
- Enhancement of regular supply of raw materials to industries through salvaging and recycling of materials of economic value from wastes.

Effective solid waste management by adult citizens will entail reduction of wastes, segregation of wastes into degradable and non-degradable materials, reuse, composting and recycling of wastes. The dumping of wastes in the designated collection centres is equally needed in order to maintain a clean and healthy environment.

Strategies for Educating and Raising Awareness on Solid Waste Management

In order to control the manner in which solid wastes are handled by individuals and authorities concerned with solid waste management, there is the need to educate the citizens and raise awareness on the negative impacts of improper management of solid wastes. This is supported by Ribbles Valley Borough Council (2009) which asserts that adopting a waste awareness and education strategy would clearly indicate commitment to raising public awareness on waste. It also considered that such a strategy would provide an ideal educational framework that will lead to consistency of information and identify more practical activities that can be undertaken by individuals and authorities concerned with wastes management. Among the strategies are discussed below:

Infusion of solid wastes management themes into academic curricula

The infusion of Solid wastes management themes for environmental sustainability into the academic curricula at all levels of education will contribute immensely to the citizen's perception and attitudinal change towards waste management. Waste management themes can be infused into traditional subjects like science, social studies, Geography and English. Adekunle, Ogons, Shekwolo, Igbukwu & Ogunkoya (n.d.:199) noted that if citizens are mobilized at a tender age, by infusing solid waste management themes into their curricular, safe waste disposal of materials will become a natural habit as their hearts and minds will be captured early in life. This will promote a sense of responsibility and best practices of managing wastes.

Establishment of environmental clubs and programmes

Establishment of environmental clubs and programmes on solid waste management in primary, secondary and tertiary institutions will equally enhance proper management of wastes. Through this medium, knowledge and understanding of solid waste management will be developed, positive attitudes, values, care and concern for the environment will be attained. In the same vein, appropriate skills and competences needed for segregation, reduction, reuse, composting and recycling will be inculcated in the citizens that will enhance active participation of people in solid wastes management.

Informal and non-formal education strategy

Individuals in the society that cannot be reached in the formal school system can be educated informally and non-formally. This could be achieved through the print and audio visual media and the internet. Adekunle, Ogons, Shekwolo, Igbuku & Ogunkoya (n.d.:199) suggest the use of cinemas, educational forums, street plays, street dances and animations like puppet shows and cartoons. Educating the people through these media will enhance better practices of solid wastes segregation, reduction, composting and recycling of solid wastes.

Public awareness on solid waste management

The creation of awareness on the negative impact of improper management of solid wastes is of great importance in motivating individuals to participate in waste management. In order to increase household participation in recycling, Omran, Mahmood, Abdul Aziz & Robinson (2008: 283) state that the message of recycling as an appropriate waste management technique needs to be adequately communicated to the public. This will enable residents to change their habits, behaviour and traditions towards recycling for the better. The message can be created through various strategies. This could be carried out through advertisements in the newspapers, television, radio, billboards and the use of leaflet. Enlightenment campaigns, clean up campaigns are other avenues of creating awareness on waste management. Abdelsner, Mahmood & Aziz (2006) in Omran, Mahmood Aziz & Robinson (2008:283) observe that the integrated use of all media can increase public participation in recycling of solid wastes. The organisation of workshops, seminars on environmental issues and solid waste management in particular can equally be employed.

Use of environmental educational materials

End-user Environmental Adult Educational materials like posters, fliers located at strategic locations in various parts will constantly keep the citizens informed about appropriate attitude and proper methods of handling the wastes they generate daily. End-user environmental adult education materials as noted by Mbalisi (2009:17) are “materials which the target audience require no further interpretation to understand and assimilate the information”.

The use of local languages in the dissemination of information on how to manage wastes properly is paramount in the sustainable solid waste management so as to reach out to the citizens that do not understand English language. These materials therefore can be prepared in different languages so as to enable the target audience comprehend the messages they convey. The activity based environmental education materials like curriculum guides, reference materials and policy documents can also be utilized. Mbalisi (2009:17) noted that activity based materials are those environmental adult education materials which require further interpretation before the target audience could understand and assimilate the information they contain. These materials can be used in schools, workshops, seminars, presentations and group discussions.

Benefits of Environmental Education and Awareness Raising on Solid Waste Management

Environmental education and awareness creation on solid waste management is a key to solving the problem associated with waste management and it enhances better practices of managing wastes. Some of the benefits that accrue from education and awareness creation on solid wastes management are:

1. development of knowledge about solid wastes and its associated problems when managed improperly;
2. inculcation of positive attitudes, skills, values and concerns towards the environment in all the citizens and authorities responsible for managing wastes;
3. it predisposes the citizens and the Agencies to participate actively in segregation, reduction, reuse, composting and recycling of solid wastes;
4. development of appropriate skills needed for segregation of solid wastes at source as this is key to proper waste management;
5. it decreases the rate of improper management of wastes and consequently the spread of diseases in the environment;
6. it enhances the protection and conservation of public health, the environment and natural resources;
7. it enhances policy implementation by decision makers on waste management.
8. Consistency in education and awareness creation on solid waste management are factors that can only improve better management of solid wastes in Nigeria.

CONCLUSION AND RECOMMENDATIONS

This paper discussed the importance of education and awareness creation on solid wastes management for effective and sustainable waste management in Nigeria. The strategies to be employed in order to achieve these goals and the benefits of education and awareness raising on this issue is equally brought to the fore.

It is recommended that education of the citizens about the management of wastes be carried out formally, informally and non-formally. Open or public education through the print, electronic and audio-visual media should be intensified. In essence the integrated use of all media should be employed in dissemination of information on solid wastes management in Nigeria. The use of environmental education materials like posters, leaflets, billboards should be utilised and placed at strategic locations in schools and public places to keep the citizens constantly informed on the need for proper management of wastes and how to manage their wastes properly.

The Federal Ministry of Environment and the various State Environmental Sanitation Agencies should encourage the citizens to practice the segregation of wastes at source by providing different types of bins for the collection of biodegradable and non-biodegradable wastes. In this wise, individuals will

segregate their solid wastes at source before placing them at designated collection centres. These strategies are laudable and should be sustained for effective management of solid wastes in Nigeria.

REFERENCES

- Adekunle, I.M., Oguns, O., Shekwolo, P.H., Igbukwu, A.O.O. and Ogunkoya, O.O. (n.d.). (2012). *Assesment of Perception Impact on Value- Added Solid Waste Management Disposal in Developing Countries: A Case Study of Port Harcourt City, Nigeria*. <<http://www.interchopen.com/download/pdf35160>> [April 20, 2012]
- Anijah-Obi, F.N. (2001). *Fundamentals of Environmental Education and Management*. Calabar: Clear lines.
- Ayotamuno, J.M. and Gabo, A.E. (2004). Municipal solid waste management in Port Harcourt, Nigeria: Obstacles and Prospects. management of environmental quality. *An International Journal*, April 15 (4), 389-397.
- Babayemi, J.O. and Dauda, K.T. (2009). Evaluation of solid waste generation, categories and disposal options in developing countries: A case study of Nigeria. *Journal of Applied science Environmental Management*, September, 2009. 13(3), 83-88. <<http://www.ajol.info/index.php/jasem/article/view/File/5537943836>> [April 16, 2012]
- Dana, L.E. (2006). How can sustainable solid waste management be achieved in Srilanka? An enquiry into the role of education and awareness building through grassroots efforts. <http://ourworld.worldlearning.org/site/Docserver/Dana_Exceberger_capstone.pdf?doc=4782> [May 2, 2012]
- Environmental Education and Training Partnership (1997). Advancing environmental education and literacy. <<http://eelink.net/eetapinfo15.pdf>> [April 15, 2012]
- Federal Register (1996). *Fiscal year 1997 environmental education grants programme: Solicitation notice*, 65106-65117.
- Glenn, A.V. (2009). Proximity to environmental hazards and reported illness in periurban households of the Dominican Republic. <<http://www.cce.mtu.edu/peacecorps/studentfile/vorhes.pdf>> [April 12, 2012]
- Mbalisi, F.O. (2009). *Methods and materials for environmental adult education*. Unpublished manuscript. University of Port Harcourt.
- Omran, A., Mahmood, A., Aziz, A.H. and Robinson, G.M. (2008). Investigating Households Attitude Towards Recycling of Solid Wastes in Malaysia: A Case Study. *International Journal Research*, 3 (2) 275-288.
- Oreyomi, M.K. (1998). *Selected Topics on Environmental Health*. Lagos: Kinson press.
- Ribble Valley Borough Council (2009). Waste awareness and education strategy. <http://www.ribblevalley.gov.uk/.../Waste_Education_and_Awareness_Strategy_1_doc> [April 10, 2012]
- UNESCO (1986). *Guidelines for the development of non-formal environmental education*. Environmental education series 23. UNESCO
- United Nations: Department of Economics and Social Affairs Division for Sustainable Development (2009). *Waste (solid)*. <<http://www.un.org/esa/dsd/sus.dev>> [April 20, 2012]
- Waste Awareness Business (2009). Waste Hierarchy-What level have you reached? <<http://wasteawarebusiness.wordpress.com/2009/03/04/waste-hierarchy-what-level-are-you-at/>> [May 3, 2012]
- Wikipedia, the free encyclopaedia (2012). *File: Waste hierarchy*. <http://en.wikipedia.org/wiki/File:Waste_hierarchy.svg> [April 2012]